Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

Report on the Collection of Fishes made by Dr. Elliott Coues, U.S.A., in Dakota and Montana, during the season of 1873 and 1874. By David S. Jordan, M.D. (Ext. from the Bulletin of the U. S. Geol. and Geog. Surveys, F. V. Hayden, in charge. Vol. IV, No. 4.) 8vo, pp. 777–799. Washington, 1878. From the author.

Description of a New Species of Smynthurus. By John A. Ryder. (Ext. from Proc. Phila. Acad. Nat. Sciences, 1878.) From the author.

A Contribution to the Palæontology of the vicinity of Poughkeepsie. By T. N. Dale, Jr. (Ext. from Proc. Poughkeepsie Soc. Nat. Sciences, Dec. 4, 1878.)

Memoirs of the Geological Survey of the United Kingdom. Monograph IV—The Chimæroid Fishes of the British Cretaceous Rocks. By E. T. Newton, F.G.S., Assistant Naturalist. 4to, pp. 50, pls. XII. From the author.

Guide du Naturaliste, Revue Bibliographique des Sciences Naturelles. Bulletin Mensuel. Par A. Bouvier. (Zoologie, Géologie, Botanique.) Large 8vo, pp. 14. 1re Année, No. 1. Paris, Janv., 1879. From the editor.

Report on the Methods of Surveying the Public Domain to the Secretary of the Interior, at the request of the National Academy of Sciences. By J. W. Powell. 8vo, pp. 16. Washington, 1878. From the author.

Letter from the Secretary of the Interior, relating to the cost of geographical surveys. 8vo, pp. 6. (Washington, Feb. 7, 1879.) From the Secretary.

Letter from the Secretary of War, communicating further information in relation to a survey of the territory west of the Mississippi river, as proposed by the National Academy of Sciences. (Washington, Jan. 30, 1879.) From the Secretary.

Kæmpedovendyr–Slægten Cœlodon. Af. J. Reinhardt. 4to, pp. 257–349, Tab. 2. (Ext. from Vidensk. Selsk. Skr. 5 Række, naturvid. og mathem. Afd. XII, 3.) Copenhagen. 1878. From the author.

Catalogue of the Birds of Granada, from a collection made by Mr. Fred A. Ober for the Smithsonian Institution, including others seen by him but not obtained. By Geo. N. Lawrence. 8vo, pp. 265–278. (Ext. from Proc. Nat. Museum.) From the author.

1er Compte-Rendu de la Commission Géologique Internationale pour l'unification des procédés graphiques. By E. Renevier. 8vo, pp. 11. Lausanne, 1879. From the author.

Notice sur L'Ouvrage de M. le Professeur Heim intitulé: Mechanismus der Gebirgsbildung im Anschluss an die Geologische Monographie der Tœdi–Uindgællen–Cruppe. By E. Renevier. 8vo, pp. 9. (Ext. from Archives des Sci. Phys. et Natur. Nouvelle période, tome soixante-quatriéme No. 251. 15 Novembre, 1878.) Geneve. From the author.

Un Mot sur la Pêche de la Baleine et les Premiéres Expéditions Arctiques. Notice lue a Séance Publique de la Classe des Sciences le 12 Decembre, 1878. Par M. P. J. van Beneden. 8vo, pp. 22. Bruxelles, 1878. From the author.

Annual Report of the Wisconsin Geological Survey for the year 1878. By T. C. Chamberlain, chief geologist. 8vo, pp. 51. Madison, 1879.

Bulletin of the United States Geological and Geographical Survey of the Territories. Vol. 5. No. 1. 8vo, pp. 152. From the survey.

The Devonian Brachiopoda of the Province of Pará, Brazil. By Richard Rathbun. 8vo, pp. 14–39. (Ext. from Proc. Boston Soc. Nat. Hist., Vol. XX, May 15, 1878.)

——:o:——

GENERAL NOTES.

BOTANY.

THE NUMBER OF STAMENS IN BRASENIA PELTATA.—There is quite a discrepancy among botanical writers regarding the number of stamens of *Brasenia peltata* Pursh, the common water-shield. A citation of a few of these, and some observations with a view to remove the differences, may not be out of place. My attention was first called to this in 1872, when critically examining some specimens of the plant gathered at Bear lake, Van Buren county, Mich. The stamens were generally 24 or 25 in number. In 1875, specimens were collected at La Porte, Ind. My notes read, "Stamens indefinite, sometimes 27." They were usually not far from 24.

The past season it was found at Pine Lake county, Ind. The highest number of stamens noticed was 37, nearly always above 30, and commonly about 36. I also gathered specimens last summer at Old Mission, on Grand Traverse bay, Mich. The plants were advanced in flower and the stamens somewhat decayed, but were apparently 18 or less. In all these cases the stamens were picked out one by one, laid on a sheet of paper and counted, several flowers being taken in each locality. The conclusion from these facts is, that the stamens vary from about 18 to 37. It would be safe to say of the plant: stamens varying from 12 to some indefinite number.

Taking the most accessible authorities, especially in American botany, I find as follows: Gray's Manual, and Chapman's Flora of the Southern States, "Sta. 12–18." Gray's Structure and Systematic Botany, "Stamens definite, or nearly so." They may therefore slightly exceed 20. In Torrey and Gray's Flora of North America, Nuttall's Genera, Wood's Class Book (earlier edition), "Sta. 18–36. In Pursh's Plants of North America, Eaton and Wright's Botany (1840, genus Hydropeltis), Linnæus' Systema Vegetabilium (Sprengel's edition), "Class Polyandria," stamens 20 or more. In Rafinesque's Medical Botany of the United States (1828), "Sta. 20–30." In Michaux's Flora, under *Hydropeltis purpurea*, "Stamens numerous (about 36)." In Wood's Class Book, last edition, "Sta. 18–24." In Baillou's Dictionnaire de Botanique, Art. Brasenia, "Its stamens and carpels are indefinite." In Le Maout et Decaisne (Traité de Botanique) under Cabombeæ, including Brasenia, "Stamens 6, 12 or 18"—doubtless 12 or 18 for Brasenia, those of Cabomba being 3 or 6. In Eichler's Blüthen diagramme (1878), "Sta. 12–8."

From these references it is evident that there has been but little agreement as regards the number of stamens. While the older writers in general gave higher numbers, and in this more nearly accord with what I have found in the vicinity of Lake Michigan, yet it is probable that they are in error by not going below eighteen. Most of them also assigned the plant a southern or southerly habitat, on the Atlantic coast from New Jersey southward, west of the Alleghenies from Kentucky south. It may be that in these localities as in the north-west the number had a higher range. But the plants found in Northern Michigan would seem to indicate the lower number, and hence the entire range be covered by plants in this vicinity. This variation in number of stamens may be due to locality, or the season, or to some inherent tendency in the plant itself. Consecutive observations in the same locality can best determine this. But this is immaterial to a correct statement in our text-books and works of reference. Assuming that all the authorities cited above are right, which may be shown to be true for some localities, as my experience in four localities proves, still there is need of a correction that shall include the experience of all. Eichler states the fact correctly, a conclusion I had already reached both from observation and a consultation of authorities, before receiving his book.

While collecting the facts for this paper I had noticed a tendency in the stamens to be multiples of six. Those found at Old Mission were apparently about 18 in number, those at Bear lake and La Porte about 24 (24–27), those at Pine about 36. This goes to confirm an observation of Nuttall (Genera, Vol. II, p. 24), which I had not read till arranging these facts for publication. Having stated that the stem is furnished with two sets of confluent central vessels, which, arriving in the leaf, resolve into twelve nerves, he continues: "As the elliptic form of the leaf originates from the eccentricity and duplicature of the central vessels, expanding in an ellipse or two intersecting circles, so we may justly consider it as a species of double leaf, hence also the stamina and the fruit is in the same manner augmented. In its coördinate *Cabomba*, which produces orbicular peltate leaves, we find only 6 stamina instead of 18, two or three styles and capsules instead of six or more, but containing the same number of seeds and of nearly the same form; hence we perceive the same type in its simple form. A proof of the small importance of mere number in the character of classes or of natural groups."

From this the inference is obvious that the doubling of the stamens would be in multiples of six. A plant with a tendency to double stamens that ranged between 12 and 18, would have from 24 to 36; those approximating the simple type *Cabomba* would be intermediate from 12–18, 18–24, 24–30, 30–36, &c.

Doubtless it is better to go back of this and say that the stamens are multiples of the three or four parts of which the calyx and corolla consist. The perianth of *Cabomba* is on the whole trimerous, the parts alternating. Eichler states: "Brasenia does not essentially differ from Cabomba except in its 12-∞ stamens, and 6-18 pistils." (Blüthten diagramme, Part II, p. 177.)

Though the stamens are not exact multiples of three and four in all cases, they vary but a little from it.—*E. J. Hill, Englewood, Ill.*

A FAIRY RING.—Last July my attention was called to a "Fairy Ring" on the lawn in front of a gentleman's residence in this city. It was a more perfect circle than could have been made by man unaided by instruments. The rim of the circle was about twelve inches in width, and the diameter from the inner edge about fifteen feet. The lawn was covered with grass some three or four inches in height, and every blade forming the circle, was found on close inspection to be covered with minute globular bodies of a grayish color which, contrasting with the green of the lawn, made the circle perceptible at a considerable distance.

On the morning of its discovery the ring was not completed by six or seven feet. The next morning it was finished. Two smaller circles were also seen on the same lawn; one however was incomplete where it encroached on a gravel walk. When the circle was struck a small smoke like cloud arose. On examining with a microscope the blades of grass which formed the ring, they were found to be covered with clusters of globular, sessile bodies from one-fortieth to one-sixtieth of an inch in diameter, which externally resembled minute puff balls. Specimens sent to Prof. W. G. Farlow of Harvard University, were pronounced by him to to be a fungus of the order Myxomycetes (*Physarum cinereum*).—*B. C. Jillson, Pittsburgh, Pa.*

INSECTS AS UNCONSCIOUS SELECTORS OF FLOWERS.[1]—Natural selection, the origin of new forms in the animal and vegetable kingdoms by the survival of the fittest, and artificial selection by man, agree in many points, though differing in others. In general they harmonize in the following respects. From generation to generation the number of individuals of every species in process of selection is increased, while the individuals of a given generation differ among themselves. Of these individuals, only such as surpass their fellows in certain directions are allowed to produce offspring; and these offspring inherit the peculiarities to which the prolonged existence of their parents is due. Hence we find that both modes of selection result in the accumulation of individual variations, all tending in a particular direction, so long as the conditions presiding over the survival of this or that individual remain constant. On the other hand, we find that these last conditions differ greatly in the two kinds of selection. Man arbitrarily destroys at once, or neglects all individuals which are neither pleasing nor profitable to him; while those which he spares become through successive generations more and more indicative of his wishes or needs. But natural selection preserves only such individuals as are best adapted to nourish and protect themselves and to produce offspring which may be widely disseminated, the offspring becoming from generation to generation better adapted to the performance of these duties. With flowers in a state of nature we find that the causes presiding over even the survival of individual forms are quite similar to those pertaining to human selection; for the insects which visit these flowers are guided like man by pleasure or profit; and, though they cannot weed out plants which do not satisfy them in either of these respects, they can cease to visit them, and by this means cause their deterioration and final destruction through self-fertilization, while such as meet their wants are strengthened by repeated crossing. Here, then, we have to deal with something more than natural selection proper, namely, a methodical though unconscious selection by the insects. A most interesting question, and one well treated by Dr. Müller in his papers, is the following: "What peculiarities of flowers are to be attributed to insect-selection, and what to natural selection?"

---

[1] An abstract of a series of very interesting articles, entitled Die Insekten als unbewusste Blumenzüchter, by Dr. Hermann Müller, Kosmos, Band III, Heft 4–6.

When an anemophilous flower begins to become entomophilous, the first step is one tending to cause insects to come in contact with its stamens and pistil; and this is either the secretion of nectar in both forms of the unisexual flowers, or the union of the sexes to form a perfect flower. Adhesiveness of the pollen must also be developed in order to insure its transfer by insects from one flower to another. Nectar, being of great value to insects, and not directly useful to the plant, should be considered the result of insect-selection; but the adhesiveness of the pollen, being of immediate value to the plant, and only utilized in comparatively recent times by insects, should be considered as a result of natural selection. We must suppose that at first all flowers were equally accessible to all insects which chose to visit them. Through successive generations, however, the selective action of insects joined to natural selection wrought great changes, whereby the flowers were so modified as to adapt them to the visits of special groups of insects, which themselves experienced, by natural selection, changes fitting them to profitably visit the modified flowers.

Dr. Müller sums up the entire matter as follows: 1. All wild flowers are the result of the combined action of two different sorts of selection. Those peculiarities (such as attractive colors, odor, sheltered retreats, food, and the means of protecting this latter product against unbidden guests) which are immediately useful only to the insects which visit the flowers, are usually the result of the selection exercised by these insects themselves; but such peculiarities as are immediately useful only to the plant (the securing of crossing when insects visit the flowers, and of self-fertilization when they do not, and the protection of the reproductive organs against inclement weather and enemies) have been developed by natural selection, acting quite independently of the insects; finally those which are equally useful to both flowers and insects are the result of the combined action of both sorts of selection.

2. The first flowers were, for the most part, simple, regular and open, and were subjected to a mixed company of insect visitors, which succeeded in rendering permanent only conspicuous colors, odor, and nectar.

3. From this original mixed group, the carrion-loving Diptera,

with their tastes so different from those of other flower-frequenting insects, have become separated as independent selectors of flowers; and, through structural peculiarities enabling them to utilize certain modifications of the flowers, the butterflies, ichneumon flies, mining-wasps, wasps, bees, and syrphus-flies have likewise become separated.

4. The carrion-loving Diptera have bred flowers distasteful to other insects (Ekelblumen). Natural selection, coming to their aid, has produced various contrivances for securing cross-fertilization, such as kettle-traps (Kesselfallen) (*Aristolochia clematidis*, *&c.*), pinching-traps (Klemmenfallen) (*Asclepias*, *Pinguicula alpina*, *&c.*) and deceptive-flowers (Täuschblumen) (*Ophrys muscifera*.)

5. Longer tongued, more intelligent, and more dexterous insects have gradually been developed from those remaining, which differed from the Diptera, but agreed among themselves in their tastes. These insects have selected nectar, which less intelligent or shorter tongued insects could not find or reach, and also receptacles and shelter for the nectar, and marks guiding to it.

6. From this circle the butterflies were adapted by their slender tongues, and certain moths by their long tongues, to appear as independent selectors of flowers. The former have selected to their present perfection those flowers which are characterized by the narrowness of the passage leading to their nectar; the latter, such as possess greatly elongated nectaries. These flowers may be divided according to their time of blooming and their color, into diurnal and nocturnal butterfly-flowers, and diurnal and nocturnal moth-flowers, while we may distinguish many transitional forms. The well-developed sense of smell of the moths is indicated by the spicy fragrance of the flowers selected by them; the well-developed color sense of the butterflies, by the beautiful colors of the products of their selection.

7. Ichneumon flies surpassed all other flower-visiting insects of their time in their acute powers of perception, and thus they were able to select for themselves inconspicuous flowers which had escaped the notice of other insects. But after the appearance of the mining-wasps and bees, the ichneumon flies could retain their flowers only in places little frequented by these insects.

8. The mining-wasps probably superseded the ichneumon-flies as flower selectors, and selected those whose nectar was accessible only by forcing open closely appressed parts, creeping bodily into a cavity, or some similar action, easy only to insects accustomed to burrowing, or creeping into crevices. Later, however, bees came into partial possession of these flowers, and they further modified many of them.

9. Wasps were able by the power of their sting to secure sole possession of certain flowers which contained nectar and still remained open. These they selected in conformity with their

wants and tastes; but in places where wasps are not very abundant the products of their selection are shared by other insects.

10. As the most industrious and most skillful insects, and withal those most dependent upon flowers for food, bees have played the most prominent part in selecting flowers—at least in Germany. They have given us the most numerous, most diversified and most specially elaborated flowers, the visiting of which calls into play those faculties which the bees have acquired and inherited through their labors in caring for their young.

11. Finally, certain syrphus-flies, passionately fond of color, and themselves brightly colored, but not especially dependent upon flowers for food, have succeeded in producing certain flowers corresponding to their tastes; meantime natural selection has given rise to contrivances in these flowers which secure cross-fertilization through the instrumentality of these insects.—*Wm. Trelease.*

BOTANICAL NEWS.—In the February and March numbers of the *Botanical Gazette*, Mr. A. H. Curtiss begins a series of papers on the Botany of the Shell Islands of Florida. Mr. A. P. Morgan writes in the February number on the the phyllotaxis of leaves. Mr. C. R. Barns indicates the differences between *Heliopsis* and *Helianthus*, and Mr. C. H. Peck describes eight new species of fungi. In the March number Mr. A. M. Canby contributes some interesting notes on *Baptisia*, with a synopsis of American species.

Trimen's *Journal of Botany* for February contains an interesting biographical notice of Elias Fries, by A. N. Lundström, accompanied by a portrait. The ferns of Borneo are enumerated and a number of new species described by J. G. Baker. Jacob Bigelow, the author of the "Plants of the Vicinity of Boston," a book thumbed so much by botanical students twenty years ago, and which gave such a gentle and healthful stimulus to the walks of local botanists, died recently in Boston at an advanced age. Bigelow and other botanists owed much to the zeal and activity of Dr. J. W. Robbins, of Uxbridge, Mass., who died at about the same time.

ZOÖLOGY.[1]

THE OVIPOSITION OF THE QUEEN BEE AND DZIERZON'S THEORY. —According to a classical theory which had its birth in Germany, and which no one now-a-days disputes, a fecundated egg of the queen bee is a female egg, and all unfecundated eggs are male. The mother bee, it is said, can even lay at will an egg of one or the other sex. This faculty, which is exceptional in the animal kingdom, is explained by assuming that the bee, at the moment of the passage of the egg into the oviduct, can apply to it or not

---

[1] The departments of Ornithology and Mammalogy are conducted by Dr. ELLIOTT COUES, U. S. A.